total cost will be about the same for both methods of installation.

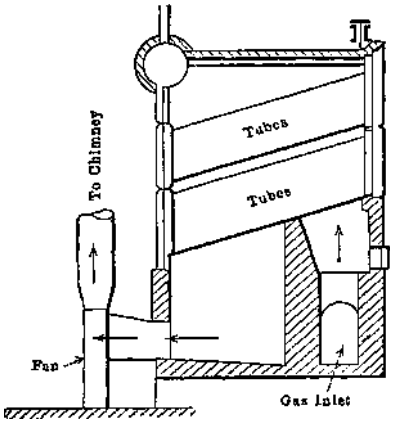

FIG. Io7.—Proposed Setting of Marine

Another factor that has to be considered, is the area of the gas passage through the boiler must be sufficient to permit the maximum volume of the products of combustion to pass without adding unduly to the draft resistance through the boiler.

In the foregoing computation the temperature of the boiler feed water was taken as zero C. In practice this will not be the case, if the average temperature of the

Boiler,
water is considered.

THE MATTER OF THE DRAFT

Stationary or land practice has persistently used brick boiler settings in spite of their many disadvantages. Brick settings are undoubtedly less costly than air-tight steel-sheathed boiler settings, and the fact that the weight of the boiler setting on land is unimportant has led to the almost exclusive use of the porous brick setting, owing to its lower cost. There are a number of places where the extremely low-draft pressure makes the brick setting comparatively unobjectionable, but in open-hearth and other waste-heat installations where a large draft differential is required the porosity of the brick setting is objectionable. In addition the brick setting will be badly damaged by any explosions which may occur; the brickwork is readily cracked and these cracks admit air which will produce explosions at each reversal.

Practically all waste-heat boilers installed upon open-hearth furnaces have necessitated the installation of an induced draft fan. With the commercial types of boiler set and baffled to the makers' drawings, these fans will be necessary, or else an unduly high chimney. The pressure in the heating chamber of the furnace is equal to the atmospheric pressure and it is necessary to supply